

# PATENT COOPERATION TREATY



## PCT

### INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)



Applicant's or agent's file reference B14550.3 ALP	<b>FOR FURTHER ACTION</b> See Form PCT/PEA/416	
International application No. PCT/EP2004/053262	International filing date (day/month/year) 03.12.2004	Priority date (day/month/year) 04.12.2003
International Patent Classification (IPC) or national classification and IPC G01N15/14, G21K1/00, G02B6/12, C03C21/00, H05H3/04		
Applicant COMMISSARIAT A L'ENERGIE ATOMIQUE et al.		
<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 5 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>		
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the opinion</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input checked="" type="checkbox"/> Box No. VIII Certain observations on the international application</p>		
Date of submission of the demand  24.08.2005	Date of completion of this report  08.03.2006	
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer  Müller, T  Telephone No. +49 89 2399-2285  	

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2004/053262

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**Box No. I Basis of the report**

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1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
- ☐ This report is based on translations from the original language into the following language , which is the language of a translation furnished for the purposes of:
- ☐ international search (under Rules 12.3 and 23.1(b))
  - ☐ publication of the international application (under Rule 12.4)
  - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements\*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

**Description, Pages**

1-18 as originally filed

**Claims, Numbers**

1-16 as originally filed

**Drawings, Sheets**

1/9-9/9 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
  - ☐ the claims, Nos.
  - ☐ the drawings, sheets/figs
  - ☐ the sequence listing (*specify*):
  - ☐ any table(s) related to sequence listing (*specify*):

\* If item 4 applies, some or all of these sheets may be marked "superseded."

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**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	4-7, 9, 15, 16
	No: Claims	1-3, 8, 10-14
Inventive step (IS)	Yes: Claims	4-7, 15, 16
	No: Claims	1-3, 8-14
Industrial applicability (IA)	Yes: Claims	1-16
	No: Claims	

2. Citations and explanations (Rule 70.7):

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

**Re Item V.**

1. Reference is made to the following document:

D1 : TANAKA T, YAMAMOTO S: "Optically Induced Meandering Mie Particles Driven by the Beat of Coupled Guided Modes Produced in a Multimode Waveguide" JAPANESE JOURNAL OF APPLIED PHYSICS 2, [Online] vol. 41, no. 3A, 1 March 2002 (2002-03-01), pages L260-L262, XP002289188 Tokyo, Japan

2. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 1 is not new in the sense of Article 33(2) PCT.  
Document D1 discloses (the references in parentheses applying to this document):

A method and a device for placement of polystyrene latex beads on a channelled glass waveguide and laser light radiation is injected onto the end face of the waveguide (page L260, right column). Particles are then grouped on the waveguides core and moved in a straight line along the waveguide channel (page L261, left column, paragraph 2).

Therefore D1 discloses features a) and b) of independent claim 1 and differs from the subject-matter of claim 1 in the steps of concentration or blocking of particles into one or several stationary clusters, that is feature c) of independent claim 1.

3. Although this step might correspond to a technical reality as stated by the applicant in his letter dated 19.8.2005, a skilled person does not know how to achieve the blocking or concentration of particles as claimed. As acknowledged in the abovementioned letter by the applicant, the technician has to perform the step of producing stationary waves through at least one diffraction grating as described in the description on page 10, and present ~~claims~~ 4 and 15 to arrive at the desired result.
4. Therefore the feature c) of present claim 1 is considered no be not clear as required by Article 6 PCT (see section VIII), and the feature is considered to be not a limiting technical feature of claim 1. Hence, D1 discloses all clear technical features of

present claim 1 and claim 1 is not new (Article 33(2) PCT).

Dependent claims 2, 3, 8-14 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Articles 33(2) and (3) PCT).

5. The combination of the features of independent apparatus claim 15 and dependent claims 4-7, and 16 are neither known from, nor rendered obvious by, the available prior art. The reasons are as follows:

The prior art according to the search report does not disclose a structure of several waveguides being surrounded on both sides by at least two diffraction gratings or a method of producing stationary waves in a waveguide by such a diffraction grating.

Therefore the subject-matter of claims 4-7, and 15,16 is considered to be new and inventive over the cited prior art.

**Re Item VIII.**

1. Claim 1 does not meet the requirements of Article 6 PCT in that the matter for which protection is sought is not clearly defined. The claim attempts to define the subject-matter in terms of the result to be achieved, which merely amounts to a statement of the underlying problem, without providing the technical features necessary for achieving the result of concentration of particles into one or several stationary clusters.
2. Claim 2 is not clear in that it refers to a step b). It is assumed that claim 2 should be formulated as dependent on claim 1.